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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/696,730 | 10/25/2000 | Oguz Tanrikulu | 2376.2001-000 | 3000 |

21005 7590 04/11/2005

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EXAMINER

HAROLD, JEFFEREY F

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

2644

DATE MAILED: 04/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/696,730

Applicant(s)

TANRIKULU ET AL.

Examiner

Jefferey F Harold

Art Unit

2644

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) See Continuation Sheet is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-5,17,19,24,25,27,31,32,34,36,40,58,60-63,65-69 and 71-92 is/are rejected.
- 7) ☒ Claim(s) 6-16,18,20-23,26,28-30,33,35,37-39,41-57,59,64,70 and 74 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Continuation of Disposition of Claims: Claims pending in the application are 1,3-17,19-25,27-34,36-40,42,43,45,46,48,49,51-58,60-63 and 65-92.

DETAILED ACTION

Response to Amendment

1. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

Allowable Subject Matter

2. The indicated allowability of **claims 2-5, 18-22, 28 and 36** is withdrawn in view of the newly discovered reference(s) to Park et al. and applicant's admitted prior art. Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. **Claims 1, 17, 24, 25, 31, 32, 34, 40, 58, 63, 68, 69, 73, 77, 78, 81, 82, 85, 86, 89 and 90** rejected under 35 U.S.C. 102(b) as being anticipated by Park et al (United States Patent 5,392,348), hereinafter referenced as Park.

Regarding **claim 1**, Park discloses a DTMF detector having sample rate decimation and adaptive tone detection. In addition, Park discloses a process for determining in an audio analog signal, which reads on "electrical signal", a presence of sinusoids used to encode disabled digits, the process consisting of: splitting the audio analog signal in to subbands of 0-1 kHz and 1-2 kHz being at a sampling frequency of less than twice the highest frequency used to encode dialed digits; and at the sampling frequency, analyzing energies within the subbands to determine the presence of the

Art Unit: 2644

sinusoids, as disclosed at column 1, lines 36-44; column 8, line 44 through column 9, line 2 and exhibited in figures 1-3.

Regarding **claims 17, 24, 25, 31, 32, 34, 40, 58, 63, 68, 69, 73, 77, 78, 81, 82, 85, 86, 89 and 90**, they are interpreted and thus rejected for the reasons set forth above in the rejection of claim 1.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. ***Claims 3, 4, 5, 19, 27, 36, 60-62, 65-67, 71, 72, 75, 76, 79, 80, 83, 84, 87, 88, 91 and 92*** are rejected under 35 U.S.C. 103(a) as being unpatentable over Park in view of applicant's admitted prior art.

Regarding **claim 3**, Park discloses everything claimed as applied above (see claim 1), however, Park fails to disclose filtering the electrical signal using a power symmetric infinite impulse response filter. However, the examiner maintains that it was well known in the art to provide filtering the electrical signal using a power symmetric infinite impulse response filter, as taught by applicant's admitted prior art.

In addition, applicant's admitted prior art, "Design and Discrete Re-optimization of All-pass Based Power Symmetric IIR Filters" discloses highly selective low-pass power symmetric IIR filters which are well suited of sub-band decomposition in applications such as acoustic echo cancellation.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Park by specifically providing filtering the electrical signal using a power symmetric infinite impulse response filter, as taught by applicant's admitted prior art, for the purpose of reduced computational complexity.

Regarding **claim 4**, Park and applicant's admitted prior art, the combination, disclose everything claimed as applied above (see claim 3), however the combination fails to disclose implementation in polyphase form. However, the examiner maintains that it was well known in the art to provide implementation in a polyphase form, as taught by applicant's admitted prior.

In addition, applicant's admitted prior art, "Adaptive Signal Processing Algorithms with Accelerated Convergence and Noise Immunity" discloses analysis and synthesis blocks of all-pass polyphase networks.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination by specifically providing implementation in polyphase form, as taught by applicant's admitted prior art, for the purpose of reduced computational complexity.

Regarding **claim 5**, Park and applicant's admitted prior art, the combination, disclose everything claimed as applied above (see claim 3), however the combination fails to disclose all-pass sections implemented in compact realizations. However, the examiner maintains that it was well known in the art to all-pass sections implemented in compact realizations, as taught by applicant's admitted prior art.

In addition, applicant's admitted prior art, "Digital All-pass Networks" discloses all-pass section implemented in various realization.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination by specifically providing all-pass sections implemented in compact realizations, as taught by applicant's admitted prior art, for the purpose of reduced computational complexity.

Regarding **claims 19, 27, 36, 60-62, 65-67, 71, 72, 75, 76, 79, 80, 83, 84, 87, 88, 91 and 92** they are interpreted and thus rejected for the reasons set forth above in the rejection of claims 3-5.

Allowable Subject Matter

5. ***Claims 6-16, 18, 20-23, 26, 28-30, 33, 35, 37-39, 41-57, 59, 64, 70, and 74*** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jefferey F Harold whose telephone number is 571-272-7519. The examiner can normally be reached on Monday - Friday 9 am - 5:30 pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh H Tran can be reached on 571-272-7564. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2644

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



JFH
April 5, 2005



Jefferey F Harold
Examiner
Art Unit 2644